

WHAT IS CLAIMED IS:

1. An apparatus, comprising:
 - a slot section having electrically conductive material which defines a slot with first and second ends;
5 an electrically conductive element extending generally transversely to said slot in the region of said first end thereof; and
 - a balun portion communicating with said first end of said slot, said balun portion having a high impedance and
10 being configured to provide a selected degree of absorption of electromagnetic energy.
2. An apparatus according to Claim 1, wherein said
15 degree of absorption is selected so that a percentage of energy which arrives through said conductive element and is absorbed is within a range of approximately 5% to 20%.
3. An apparatus according to Claim 2, wherein said
20 percentage of energy is with a range of approximately 9% to 15%.
4. An apparatus according to Claim 3, wherein said
percentage of energy is substantially 12%.
- 25 5. An apparatus according to Claim 1, wherein said balun portion includes a resistive portion which facilitates said selected degree of absorption of electromagnetic energy.

5 6. An apparatus according to Claim 5, wherein said
resistive portion includes a sheetlike portion which
extends approximately transversely to a centerline of
said slot, and which is spaced from said first end of
said slot.

10 7. An apparatus according to Claim 5, wherein said
resistive portion includes a plurality of sheetlike
portions which each extend approximately transversely to
a centerline of said slot, and which are spaced from said
first end of said slot by respective different distances.

15 8. An apparatus according to Claim 5, wherein said
balun portion includes a filler portion made of a
material with a low dielectric constant.

20 9. An apparatus according to Claim 8,
wherein said resistive portion includes a sheetlike
portion which extends approximately transversely to a
centerline of said slot, and which is spaced from said
first end of said slot; and

25 wherein said filler portion includes first and
second sections which are disposed on opposite sides of
said sheetlike portion.

10. An apparatus according to Claim 8,
wherein said resistive portion includes first and
second sheetlike portions which each extend approximately
5 transversely to a centerline of said slot, and which are
spaced from said first end of said slot by respective
different distances; and
wherein said filler portion includes first, second
and third sections, said first sheetlike portion being
10 disposed between said first and second sections, and said
second sheetlike portion being disposed between said
second and third sections.

11. An apparatus according to Claim 5, wherein said
15 balun portion includes an electrically conductive portion
which, within a plane containing the centerline of said
slot, extends completely around said resistive portion,
except where said first end of said slot communicates
with said balun portion.

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12. An apparatus according to Claim 5, wherein said
balun portion includes:

a filler portion made of a material with a low
dielectric constant; and

25 an electrically conductive portion which, within a
plane containing the centerline of said slot, extends
completely around said resistive portion and said filler
portion, except where said first end of said slot
communicates with said balun portion.

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13. An apparatus, comprising:

a slot section having electrically conductive material which defines a plurality of slots that each
5 have a first end and a second end;

a plurality of electrically conductive elements which each extend generally transversely to a respective said slot in the region of said first end thereof; and

a plurality of balun portions which each communicate
10 with said first end of a respective said slot, each said balun portion having a high impedance and being configured to provide a selected degree of absorption of electromagnetic energy.

15 14. An apparatus according to Claim 13, wherein said degree of absorption is selected so that a percentage of energy which arrives through each said conductive element and is absorbed is within a range of approximately 5% to 20%.

20 15. An apparatus according to Claim 14, wherein said percentage of energy is with a range of approximately 9% to 15%.

25 16. An apparatus according to Claim 15, wherein said percentage of energy is substantially 12%.

30 17. An apparatus according to Claim 13, wherein each said balun portion includes a resistive portion which facilitates said selected degree of absorption of electromagnetic energy.

18. An apparatus according to Claim 17,
wherein said slots have centerlines which are all
approximately parallel to each other; and

5 including a sheet of resistive material which is
spaced from said first end of said slot, which extends
approximately transversely to the centerlines of said
slots, and which has a plurality of portions that each
serve as said resistive portion of a respective said
balun portion.

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19. An apparatus according to Claim 17,
wherein said slots have centerlines which are all
approximately parallel to each other; and

15 including a plurality of sheets of resistive
material which are spaced from said first end of said
slot by respective different distances, which each extend
approximately transversely to the centerlines of said
slots, and which each have a plurality of portions that
each serve as part of said resistive portion of a
20 respective said balun portion.

20. An apparatus according to Claim 17, wherein
each said balun portion includes a filler portion made of
a material with a low dielectric constant.

21. An apparatus according to Claim 20,
wherein said slots have centerlines which are all
approximately parallel to each other;

5 including a sheet of resistive material which is
spaced from said first end of said slot, which extends
approximately transversely to the centerlines of said
slots, and which has a plurality of portions that each
serve as said resistive portion of a respective said
10 balun portion; and

including first and second layers which are made
from said material with said low dielectric constant and
which each include a plurality of sections that each
serve as a part of said filler portion of a respective
15 said balun portion, said sheet of resistive material
being disposed between said first and second layers.

22. An apparatus according to Claim 20,
wherein said slots have centerlines which are all
approximately parallel to each other;

5 including first and second sheets of resistive
material which are spaced from said first end of said
slot by respective different distances, which each extend
approximately transversely to the centerlines of said
slots, and which each have a plurality of portions that
10 each serve as part of said resistive portion of a
respective said balun portion; and

including first, second and third layers which are
made from said material with said low dielectric
constant, and which each include a plurality of sections
15 that each serve as a part of said filler portion of a
respective said balun portion, said first sheet being
disposed between said first and second layers and said
second sheet being disposed between said second and third
layers.

23. An apparatus according to Claim 17,
including an electrically conductive layer which
extends approximately transversely to the centerlines of
said slots and which is disposed on a side of said balun
portions remote from said slots; and
5 including a plurality of electrically conductive
parts which are spaced from each other, which each extend
approximately parallel to the centerlines of said slots,
and which are electrically coupled to said electrically
10 conductive layer and to the electrically conductive
material of said slot section;
wherein each said balun portion includes portions of
two of said parts and a portion of said electrically
conductive layer which collectively serve as an
15 electrically conductive portion that, within a plane
containing the centerline of the associated slot, extends
completely around said resistive portion of that balun
portion, except where said first end of the associated
slot communicates with that balun portion.
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24. An apparatus according to Claim 23, including a
plurality of coaxial feeds which extend through said
electrically conductive parts and which each have a
center conductor with a portion that serves as a
25 respective said electrically conductive element.

25. An apparatus according to Claim 17,

wherein each said balun portion includes a filler portion made of a material with a low dielectric constant;

5 including an electrically conductive layer which extends approximately transversely to the centerlines of said slots and which is disposed on a side of said balun portions remote from said slots; and

10 including a plurality of electrically conductive parts which are spaced from each other, which each extend approximately parallel to the centerlines of said slots, and which are electrically coupled to said electrically conductive layer and to the electrically conductive material of said slot section;

15 wherein each said balun portion includes portions of two of said parts and a portion of said electrically conductive layer which collectively serve as an electrically conductive portion that, within a plane containing the centerline of the associated slot, extends
20 completely around said resistive portion and said filler portion of that balun portion, except where said first end of the associated slot communicates with that balun portion.

26. A method of operating an apparatus which includes a slot section having electrically conductive material which defines a slot with first and second ends,
5 an electrically conductive element extending generally transversely to said slot in the region of said first end thereof, and a balun portion communicating with said first end of said slot, comprising:

10 configuring said balun portion to have a high impedance; and

absorbing a selected degree of electromagnetic energy in said balun portion.

27. An apparatus according to Claim 26, including
15 selecting said degree of absorption so that a percentage of energy which arrives through said conductive element and is caused to travel through said slot toward said second end thereof is within a range of approximately 80% to 95%.

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28. An apparatus according to Claim 27, wherein said selecting of said degree of absorption is carried out so that said percentage of energy is within a range of approximately 85% to 90%.

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29. An apparatus according to Claim 28, wherein said selecting of said degree of absorption is carried out so that said percentage of energy is substantially 88%.

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30. An apparatus according to Claim 26, including configuring said balun portion to include a resistive portion which facilitates said selected degree of absorption of electromagnetic energy.

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31. An apparatus according to Claim 30, including configuring said balun portion to include a filler portion made of a material with a low dielectric constant.

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